"A STUDY ON BARRIERS RELATED TO PREVENTION AND MANAGEMENT OF ACUTE RESPIRATORY INFECTION AMONG MOTHERS OF UNDER FIVE CHILDREN WITH A VIEW TO DEVELOP AND EVALUATE A NEED BASED INTERVENTIONAL PACKAGE IN A SELECTED RURAL COMMUNITY OF DELHI"

SYNOPSIS SUBMITTED

By

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For Ph.D. Degree in Faculty of Nursing

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DECLARATION

I hereby declare that the synopsis entitled **"A study on barriers related to prevention and management of acute respiratory infection among mothers of under five children with a view to develop and evaluate a need based interventional package in a selected rural community of Delhi"** is my own original work and it has not formed the basis for the award of any degree, diploma, associateship or fellowship of similar other titles.

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INTRODUCTION

Children are seeds for future of the country. They are most precious part of nation in term of physical, mental, emotional development as a worthy citizen. The development of country is completely based on healthy citizen. Nutrition is vital to get good health and to get protection from infection.[1] The care of child starts from birth only. The first five years of child need good care. This period is the recognition of physical growth, psychological development and acquiring of competence.[2]Malnutrition, diarrhoea and acute respiratory infection are more prevalent in under five children in developing countries like India.

Acute respiratory infection is infection of tract system of respiration that interferes with normal breathing. It includes upper and lower respiratory infection. Upper respiratory infection is acute infection which leads to involvement of nose, sinuses, pharynx, larynx. [3] It leads to obstruction of passage of gaseous exchange which causes difficulty in breathing. Children are more vulnerable group to get infection in respiratory infection due to low immune system. If upper respiratory infection is not treated, it extends to lower respiratory tract. [4]

Acute respiratory infection can be caused by bacteria, fungi and virus. Acute respiratory infection is diagnosed by nasal discharge, sore throat, fever less than three days, cough.[5] The symptoms can be aggravated if not managed which is characterised by noisy breathing like wheezing sound and stridor, ear ache, fast breathing and chest indrawing. Children must be reported to hospital If aggravated symptoms are present. Acute respiratory infection is communicable which can spread from infected child to another person. [6]The episodes of ARI can be mild and lead to severe episodes. The recurrent episodes of ARI affect the growth and development of child. There are many risk factors have been identified. These includes inadequate nutrition, unhygienic housing condition, overcrowding, prematurity, malnutrition, inadequate breastfeeding and weaning practice.[7]

It was estimated that acute respiratory infection is responsible for 3.9 million deaths among under five children all over world. It contributes 15-30% death among under-five children. most of the death can be prevented with preventive measures. Under five children are suffering with at least 5 episodes of acute respiratory infection in one year. Approximately 13 5 children are admitting in hospital is because of acute respiratory infection only. [8]

In India, death of under five children is 14.3% in infancy period, 15.9% between one to five years are due to acute respiratory infection. The most common causative organism of acute respiratory infection are pneumococci, Haemophilus influenzae, Staphylococcus aureus. [9]

According to National family health survey 3, about 6% under five children were presenting with acute respiratory tract infection. Among these children only 69% reported to hospital for medical treatment. This report revealed that environmental determinants and social factors are contributing factors for occurrence of episodes of acute respiratory infection. Lack of awareness for prevention and management of acute respiratory infection at home and poor access to hospital are also contributing factors for its. [10]

Thus, it becomes very necessary to assess the incidence and risk factors of acute respiratory infection which will provide us proper direction to plan program and progressive strategies for children and them to reduce incidences of ARI and to growth and development of children.

NEED FOR THE STUDY

Acute respiratory infection is contributing about one third of mortality rate among under five children. **According to WHO World health statistics 2018**, Approximately 18% under five children die from acute respiratory infection all over world**.** Seven death per 10 under five children are related to acute respiratory infection. [12]

According to National health family survey 4 (2015-2016) In India , The mortality rate was 30 deaths per 1000 live birth among neonates , 41 deaths per 1000 live birth among infants and 50 deaths per 1000 live births among under five children. It indicates that in India one in 20 children die before completing 5 years of age of child. The highest death rate is found in Uttar Pradesh (78 deaths found in 1,000 live births) and least is in Kerala (7 deaths found in 1,000 live births). [13]

According to NFHS 4, it is found that rural areas are having more under five mortality rates as compared to urban area. It is recorded that urban area had 56 under five deaths in 1,000 live births in urban and rural area had 34 deaths in 1,000 live births which constitutes 34.4% and 55.8% in urban and rural areas respectively. In Delhi 42 death per 1000 live birth (42.2%) among under five children. [13]

In India it is recorded that 16% children presented with symptoms of ARI among under five children. The attack of ARI is self-limiting. ARI contributes 30-50% visiting to health facilities for check-up and treatment and approximately 20-40% children admit to hospital with diagnosis of acute respiratory infection. [14]

In Delhi, it is reported that 4% under five children presented with symptoms of ARI. The children experience approximately 5 episodes of ARI in one year among under five children. It is identified that ARI contributes 13% death of under-five children in paediatric ward.[14]

So there is need to implement preventive measures to reduce mortality and morbidity rate due to acute respiratory infection. The preventive measures of respiratory infections includes hygienic practices related to personal and environmental hygiene, appropriate disposal of respiratory secretions, isolation is infected patients, maintenance of nutritional status, immunization to be completed as per schedule and special protection of children during weather variations to prevent cold.

REVIEW OF LITERATURE

1) Review of literature related to occurrence of acute infection of respiratory tract among under five years children.
2) Review of literature related to factors associated with acute infection of respiratory tract among under five years children.
3) Review of literature related to preexisting knowledge and reported practice of mothers of under five children related to prevention and management of ARI.
4) Review of literature related to intervention for prevention of acute infection of respiratory tract among under five years children

Review of literature related to occurrence of acute infection of tract system of respiration in below five years age children

Ganesh S, Majumdar A, Kumar V, Naik NB, Selvaraj K, Karthik (2016) conducted a study to identify the prevalence of ARI and its associated factors among under five children in Pondicherry. A total of 509 parents were selected through purposive sampling technique. Parents were interviewed regarding occurrence of ARI with selected associated factors with the help of structured questionnaire through house to house survey. The result was found that occurrence of ARI was high in urban area and showed overcrowding, mothers' education was more associated with episode of ARI. It was concluded that preventive measures may decrease the occurrence of ARI.[15]

Goel K, Ahmad S, Agarwal G, Goel P, Kumar V (2012) conducted a study to assess the occurrence of acute infection of respiratory tract in urban and rural area of Meerut in Uttar Pradesh. A total of 450 under five children was selected through purposive sampling technique from urban and rural area. A self-structured questionnaire was used to collect data through interviewing the mothers regarding occurrence of ARI along with history of its recurrent episode in last one year. The result was found that 52% children were presented with symptoms of ARI. The symptoms of

ARI were more prevalent in children with low socio-economic status, uneducated mothers, overcrowded condition, malnutrition of child and parental smoking.[16]

Review of literature related to factors associated with acute infection of respiratory tract in below five years age children.

Choube A, Kumar B, Mahmood ES, Srivastava A (2014) conducted a study to identify factors associated and occurrence of acute infection of respiratory tract among less than five years in rural community of Moradabad, Uttar Pradesh. A total of 278 children were selected with the help of purposive sampling technique through house to house survey. A structured questionnaire was used to collect data for identifying risk factors through interviewing their mothers. The result was found that low birth weight babies had more prevalence of acute respiratory infection. [17]

Maharajan PL and Sharma Y conducted a study to identify prevalence and factors associate with acute infection of tract system of respiration in below five years children in Gorkha. A total of 200 children were selected through systematic random sampling technique. Mothers were interviewed with the help of structured questionnaire for data collection. The result was found that acute respiratory infection was more prevalent in crowded area. There was significant association with type of house, educational status of mother, cold and dampness in room. [18]

Review of literature related to preexisting knowledge and reported practice of mothers of under five children related to prevention and management of ARI.

Mutalik AV, Raj V (2017) conducted a study to identify attitude, practice, knowledge related to prevention of acute respiratory infection in rural area of Maharashtra. A total of 74 mothers were selected through purposive sampling technique. Mothers were interviewed with structured questionnaire. The study found that about more than 50% mothers were having poor knowledge, practice and attitude regarding respiratory infection among under five children. It was

concluded that lack of awareness, poor practice are major determinants of presenting of symptoms with acute respiratory infection.[19]

Prajapati BJ, Tasmania NJ, Lala MK, Somalia KN (2012) conducted a study to assess reported practice, knowledge of mother and their attitude related to acute infection of respiratory tract in selected rural and urban area in Gujrat. A total of 500 mothers were selected with random sampling technique. A structured questionnaire was used for interviewing mothers. The study found that knowledge of mothers was not good. [20]

Review of literature related to intervention for prevention of infection in upper tract of respiratory system in below five years children

Chauhan V, Sorte DY, Sylvia R (2013) conducted a study to evaluate the effectiveness of preventive interventional educative program on acute infection of respiratory tract on recovery period of children and practice of care giver in selected area of Haridwar. A total of 51 children and their care giver were selected through convenient sampling technique. A pretested structured questionnaire, practice checklist and rating were used to collect data. the education program was conducted on prevention of ARI in less than five years children. This study found that there was increase in practice score and improvement in symptoms of URTI. It was concluded that awareness is important for prevention of URTI among children. [21]

Naveen R, Angela DL, Norbert L, Ricardo O (2016) conducted a study to identify assess practice, attitude and outcome of preschool age children in selected rural area of Karnataka. A total of 108 and 113 mothers were selected with purposive sampling technique. The mothers were interviewed with NFHS based questionnaire. Anthropometric measurement of children was also collected. The study found that knowledge score of mothers is almost similar in both group, practice score of mothers was more in urban than rural. [22]

RESEARCH STATEMENT

A study on barriers related to prevention and management of acute respiratory infection among mothers of under five children with a view to develop and evaluate a need based interventional package in a selected rural community of Delhi

OBJECTIVES

1. To explore barriers related to prevention and management of acute respiratory infection in under five children
2. To identify risk factors of acute respiratory infection in under five children.
3. To determine the effectiveness of need based interventional package on knowledge of mothers regarding prevention and management of Acute respiratory infection in under five children
4. To determine the effectiveness of need based interventional package on practice of mothers regarding prevention and management of Acute respiratory infection in under five children
5. To determine effectiveness of need based interventional package on frequency of symptoms and number of episodes of acute respiratory infection in under five children
6. To find correlation between knowledge and practice of mothers on prevention and management of acute respiratory infection in under five children

HYPOTHESIS

The hypothesis will be tested at 0.05 level of significance

H_1- The mean post-test knowledge score of mothers in experimental group will be significantly higher than that of their mean post-test knowledge score in control group.

H_2- The mean post-test practice score of mothers in experimental group will be significantly higher than that of their mean post-test practice score in control group.

H_3- There will be significant decrease in frequency of symptoms and number of episodes of acute respiratory infection among under five children in experimental group after administration of need based interventional package as compared to control group.

H_4- There will be significant correlation between knowledge and practice of mothers on prevention and management of acute respiratory infection in under five children

Assumption: The study assumes that

- Acute respiratory infection is health problem in under five children
- The sample will be true representation of target population.

OPERATIONAL DEFINITION

- **Barriers:** It refers to factors affecting practice of mother related to prevention and management of acute respiratory infection in under five children.
- **Acute respiratory infection:** It refers to upper respiratory infection in under five children which is manifested cough, blocked or running nose, sore throat, nosily breathing, mild fever. A child having one or more of these symptoms will be identified as acute respiratory infection case.

- **Prevention and management of acute respiratory infection:** It refers to activities performed by mothers in order to prevent occurrence and home-based management of acute respiratory in under five children.
- **Under five children:** In this study, under five children refers to children in the age group of one to five years.

- **Evaluate: It** refers to effectiveness of need based interventional package on knowledge and practice of mothers related to prevention and management of acute respiratory infection and frequency of symptoms and number of episodes of acute respiratory infection in under five children. In this study, knowledge refers to correct responses given by mothers as measured by structured knowledge questionnaire and practice refers to performance of activities by mothers on prevention and management of acute respiratory infection.

- **Need based interventional package:** It refers to multi-component educational package consisting of information on acute respiratory infection, causes, sign and symptoms, prevention and management of ARI, demonstration on handwashing, steam inhalation and chest physiotherapy. This program will be developed on the basis of gaps identified regarding prevention and management of acute respiratory infection in under five children.

VARIABLES

- **Research variables:** Barriers related to prevention and management of acute respiratory infection among under five children.
- **Independent variables:** Need based interventional package on prevention and management of acute infection of respiratory tract among under five years children

- **Dependent variable:**
    1. knowledge of mothers on prevention and management of acute respiratory infection in under five children
    2. Practice of mothers on prevention and management of acute respiratory infection in under five children
    3. Frequency of symptoms and number of episodes of acute respiratory infection in under five children

DELIMITATION

- Study will be delimited to selected District of North Delhi.
- Children belonging to the age group of one to five years in selected area of North district Delhi.
- Intervention will be delimited to home management of acute respiratory infection.

RESEARCH METHODOLOGY

Research approach: A mixed method Approach

Research Design:

Phase 1: Exploratory design

Phase 2: Development of need based intervention package on prevention and management of acute respiratory infection

Phase 3: Randomized control study

Research setting: The study will be done in selected rural community of District North Delhi. It has three subdivision. These are model town, Narela and Alipur. There are 8 villages in model town, 13 villages in Alipur, 28 villages in Narela.

Target Population: The target population of the study will be mothers of under five children.

Accessible Population: The accessible population of the present study will be mothers of under-five children.

Sample: Mothers having Children in age group of one to five years and children suffering from acute respiratory infection and had episode more than three years in past 6 months.

Sample size:

Phase 1

$n=z^2pq/d^2$

Z= 1.96 q=1-p d=absolute error 5% (0.05)

P= 53.2% ref (19) p= 0.53 d=1-0.53=0.47

n= 1.96*1.96 * 0.53*0.47/ 0.05 *0.05

n =345 children in age group of one to five years

Phase 2

$$N= \frac{2\times Sp^2[Z_{1-\alpha/2} + Z_{1-\beta}]^{2/}}{d^2}$$

$Z_{1-\alpha/2}$ = 1.96 at 5 % level of significance $Z_{1-\beta}$ = 0.84 at 80% power

Sp2= 0.16 d =4

Sampling technique: Multistage cluster sampling technique will be used.

INCLUSION CRITERIA

- Mothers of children suffering from acute respiratory infection
- Mothers of children who had more than three episodes of acute respiratory infection in past 6 months
- Mothers having children in the age group of one to five years
- Mothers who are able to understand Hindi language

EXCLUSION CRITERIA

- Mothers having any mental illness
- Mothers having less than one-year age of children
- Mothers who will not be available at the time of data collection

RESEARCH TOOL

Tool 1: Sociodemographic variables

Tool 2: Structured ARI screening Tool

Tool 3: Open ended questionnaire on exploring barriers related to prevention and management of acute respiratory infection

Tool 4: Semi structure interview to explore risk factors of acute respiratory infection.

Tool 5: Structured knowledge questionnaire on prevention and management of acute respiratory infection

Tool 6: Structured self-reported practice scale on prevention and management of acute respiratory infection

DESCRIPTION OF TOOL

Tool 1: Sociodemographic variables

It includes age of child, Gender of child, educational status of mothers, occupation of mother, type of family, socioeconomic status, religion of family, history of any respiratory infection in family, dietary pattern, no of children in family, Family profile.

Tool 2: Structured ARI screening tool

This tool consists assessment of child for presence of acute respiratory infection. It measures number, frequency of symptoms and number of episodes of acute respiratory infection in under five children.

Tool 3: Open ended questionnaire

It will be used to explore barriers on prevention and management of acute infection of respiratory tract in under five. Focus Group discussion will be conducted for mothers with the help of open ended questionnaire. The questions will be structured under the following headings:

1. Prevention of acute respiratory infection
2. Home management of Acute respiratory infection

Tool 4: Semi structured questionnaire

This tool will be used to explore risk factors of acute respiratory infection in children. It includes child's characteristics, environmental characteristics, practice for prevention of acute respiratory infection in children.

Tool 5: Structured self-reported practice scale on prevention and management of ARI

It will be used to assess mother's reported practice related to prevention and management of acute respiratory infection at home. The component of tool will be related to hygiene, Nutrition, Hygiene, Steam inhalation and Home remedies

Tool 6: Structured knowledge questionnaire on prevention and management of ARI

It will be used to assess mother's knowledge related to prevention and management of acute respiratory infection. The component of tool will be related to introduction to acute respiratory infection, causes, recognition of first and worsening sign and symptoms of acute respiratory infection, complication, thermoregulation, nutrition, hygiene includes child and environment, reduction of indoor and passive smoking, food hygiene, use of fuel in cooking, steam inhalation, home remedies, deep breathing exercise, home remedies preparation.

VALIDITY

The tools will be submitted to experts from different field of community medicine, community health nursing, paediatric medicine, child health nursing, department of nutrition and obstetrics and maternity nursing.

RELIABILITY

The reliability of structured knowledge questionnaire and reported practice checklist will be done by split half method and test retest method respectively

PILOT STUDY

Pilot study will be done on 10% of sample population in selected area of North Delhi.

DATA COLLECTION PROCEDURE

Phase 1:

The study will be conducted in North Delhi. One subdivision will be randomly selected from three subdivision. Two villages will be randomly selected from selected subdivision. Door to door survey will be done. Mothers of under five children will be identified. One to five years of children were screened out for presence of acute respiratory infection and had episode of acute respiratory infection in past six months. Focused group discussion will be conducted for all mothers of under five children related to barriers on prevention and management of acute infection of respiratory tract.

Phase 2:

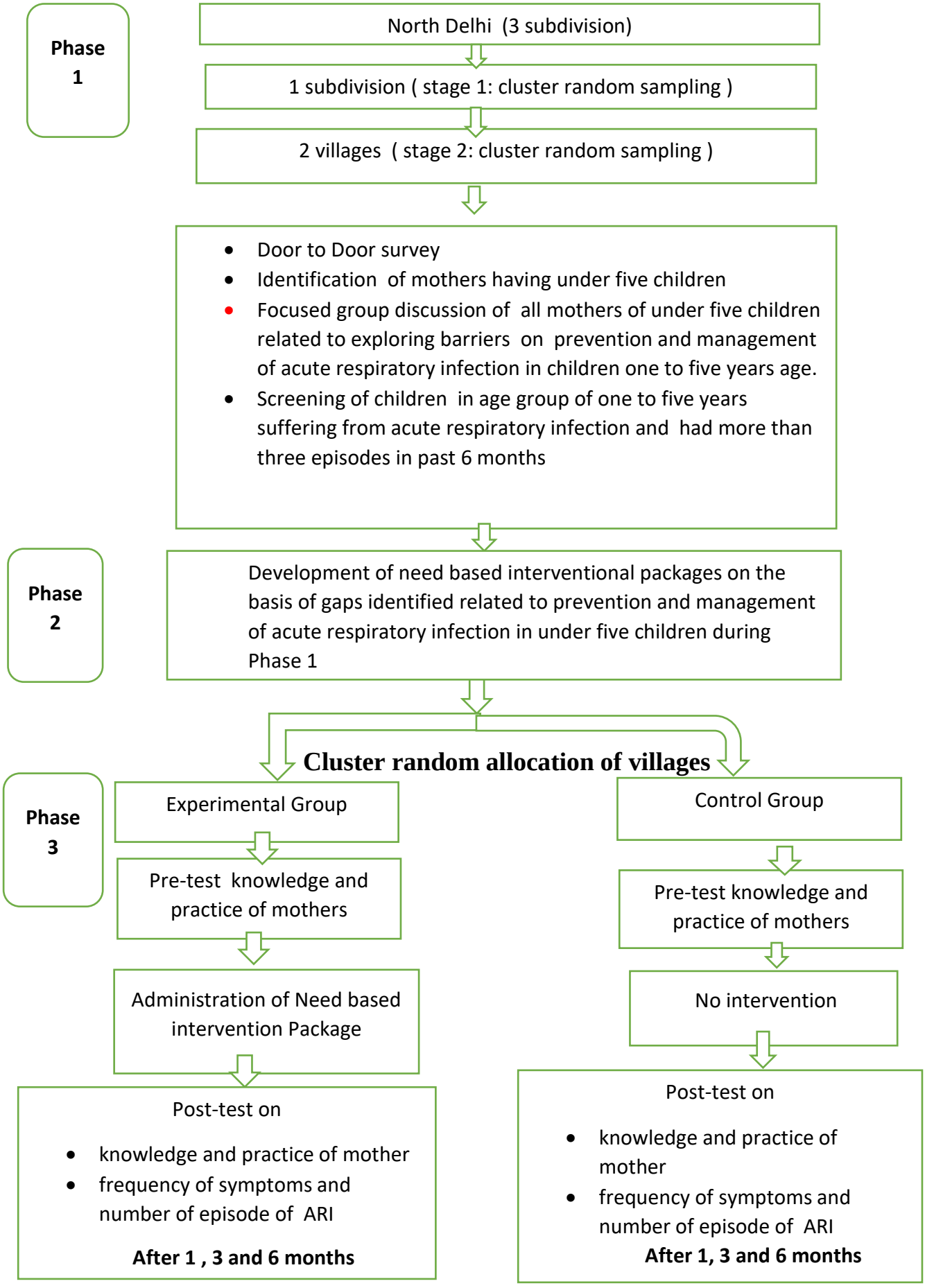
Need based interventional package will be developed on the basis of gaps identified related to prevention and management of acute infection of respiratory tract in under five.

Phase 3:

Cluster Random allocation of villages will be done in to experimental and control group. Mothers of one to five years of children suffering from acute respiratory infection and had episode of acute respiratory infection in past six months will be included as sample. Interventional package will be implemented after assessing pre-test knowledge and practice of mothers. Knowledge and practice of mothers and frequency of symptoms and number of episodes will be assessed after one month, three months and six months.

Dependent variables	Group	Pre-test	Intervention	Post test (1month)	Post test (3month)	Post test (6month)
Frequency of symptoms and number of episodes	Experimental group	O1	X	O2	O3	O4
	Control group	O1		O2	O3	O4
Knowledge of mothers	Experimental group	O1	X1	O2	O3	O4
	Control group	O1		O2	O3	O4
Practice of mothers	Experimental group	O1	X1	O2	O3	O4
	Control group	O1		O2	O3	O4

SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY


Phase 1
North Delhi (3 subdivision)
1 subdivision (stage 1: cluster random sampling)
2 villages (stage 2: cluster random sampling)
Door to Door survey
Identification of mothers having under five children
Focused group discussion of all mothers of under five children related to exploring barriers on prevention and management of acute respiratory infection in children one to five years age.
Screening of children in age group of one to five years suffering from acute respiratory infection and had more than three episodes in past 6 months
Phase 2
Development of need based interventional packages on the basis of gaps identified related to prevention and management of acute respiratory infection in under five children during Phase 1
Cluster random allocation of villages
Phase 3
Experimental Group
Pre-test knowledge and practice of mothers
Administration of Need based intervention Package
Post-test on
knowledge and practice of mother
frequency of symptoms and number of episode of ARI
After 1 , 3 and 6 months
Control Group
Pre-test knowledge and practice of mothers
No intervention
Post-test on
knowledge and practice of mother
frequency of symptoms and number of episode of ARI
After 1, 3 and 6 months

ETHICAL CONSIDERATION

- Ethical permission will be taken from ethical committee from SRHU.
- Administrative permission will be taken from local authority of community area.
- Anonymity and confidentiality of subjects will be maintained.
- Written consent will be taken from participants.

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